

## **REMARKS**

Claims 1-45 and 47-50 are pending in this application. By this amendment, Applicants have amended claims 8, 33, 40, 42, and 44, canceled claim 46, and added new claims 48-51. Reconsideration in view of the following remarks is respectfully requested.

Applicants appreciate the courtesies extended to Applicants' representative during a telephone interview conducted on November 10, 2003. During the interview, various features included in claims 1, 4, 5, 7, 8, and 14 were discussed with respect to Vanaki. The substance of the interview is incorporated in the following remarks. No exhibits were presented, and no agreement was reached during the interview.

## **OBJECTION TO THE DRAWINGS**

The Office objects to the drawings for allegedly failing to show the feature of nineteen lines of light as claimed in claim 8. During the telephone interview, Applicants' representative pointed out that FIGS. 6 and 8 of the disclosure denote multiple lines of light and include an indication of a larger area covered by the lines of light. As a result, Applicants respectfully submit that this sufficiently discloses the claimed feature. Regardless, Applicants have herein amended claim 8 to remove the claimed feature, without prejudice. As a result, withdrawal of this objection is respectfully requested.

## **REJECTIONS OF CLAIMS**

The Office rejects claims 1-3, 5-7, 9-12, 14-15, 17, 19-21, 23-28, 31-36, 38-41, and 44-46 under 35 U.S.C. § 102(b) as allegedly being anticipated by Vanaki. In view of the amendments

presented above and following remarks, Applicants respectfully request withdrawal of this rejection.

With respect to claims 1-3, 15, 17, 19, and 33-35, Vanaki fails to disclose the claimed invention including, *inter alia*, illuminating a first portion of the first side of the wheel with a first plurality of paths of light from a first light illumination device. As discussed during the interview, each laser in Vanaki projects a single line of light as clearly stated at column 5, lines 23-32 and shown in FIG. 7 of Vanaki. By projecting a plurality of paths of light from a first illumination device, Applicants' solution is more efficient than the sensor described in Vanaki. As a result, Applicants respectfully request withdrawal of this rejection.

With respect to claim 5, Vanaki fails to disclose the claimed invention including, *inter alia*, illuminating a portion of the wheel having a width of approximately four inches. As Applicants' representative noted in the telephone interview, Vanaki expressly teaches projecting two lines of light onto a wheel. The first line of light is twelve inches above ground level, while the second line of light is fourteen inches above the ground. Col. 5, lines 23-32. As a result, at most, Vanaki teaches illuminating a width of two inches.

With respect to claims 7, 32, and 39, Vanaki fails to disclose the claimed invention including, *inter alia*, illuminating a wheel using a plurality of substantially parallel lines of light arranged in a substantially radial direction. The Office cites column 7, lines 38-42 of Vanaki as allegedly supporting this rejection. However, as Applicants' representative noted during the telephone interview, this discussion is limited to the desired measurements, and not the lines used to obtain the measurements. In fact, immediately after the cited discussion, Vanaki states that "[t]he profiles are taken off center and are corrected to a radial profile by knowing the wheel

diameter and center.” In other words, as shown in FIG. 7 of Vanaki, Vanaki uses two horizontal lines of light to obtain data points that are subsequently corrected to a radial profile. In sharp contrast, Applicants’ claimed invention uses lines that are substantially radial, not horizontal as in Vanaki. Use of radial lines provides a more direct measurement of the wheel diameter as opposed to the horizontal lines of Vanaki. As a result, Applicants respectfully request withdrawal of this rejection.

With respect to claim 12, Vanaki does not inherently disclose a wheel moving at approximately fifty miles per hour. In sharp contrast, Vanaki expressly discloses a wheel moving at a substantially slower “6-8 miles per hour.” Col. 10. line 22. As a result, Applicants respectfully request withdrawal of this rejection.

With respect to claims 14 and 44, and with further respect to claim 33, Vanaki does not teach the claimed invention including, *inter alia*, determining a bad data point and ignoring the bad data point to measure the attribute of the wheel. As discussed by Applicants’ representative during the telephone interview, Vanaki discusses obtaining four data points, A-D shown in FIG. 7 of Vanaki, and using all of these data points to perform several calculations and corrections as discussed in col. 9, lines 24-47 of Vanaki. Consequently, Vanaki fails to inherently or expressly address a situation in which one or more of the four data points is bad. In sharp contrast, the claimed invention obtains numerous data points by illuminating a portion of the wheel with a plurality of paths of light. This allows one or more of the data points to be ignored when measuring the attribute of the wheel. As a result, Applicants respectfully request withdrawal of this rejection.

With respect to claim 23, Vanaki fails to disclose the claimed invention including, *inter alia*, both a local control unit and a system control unit. In support of its rejection, the Office cites col. 9, line 3-col. 10, line 18 of Vanaki as allegedly disclosing these features of the claimed invention. However, Applicants note that this discussion is limited to a single “control unit” that both operates the profile sensor and calculates the profile of the running surface. Use of separate systems in the claimed invention allows a local control unit to only perform the control necessary for data collection, while a system control unit can perform the various calculations and/or provide a user interface. In this manner, the local control unit can perform more efficiently than the “control unit” of Vanaki. As a result, Applicants respectfully request withdrawal of this rejection.

With respect to claim 40, Vanaki fails to disclose the claimed invention including, *inter alia*, attaching two sensors to the rail. In support of its rejection, the Office cites various presence sensor pairs of Vanaki as allegedly disclosing this feature of the claimed invention. However, as clearly shown in FIG. 8 of Vanaki, the presence sensor pairs are not attached to the rail. Further, Applicants have herein amended claim 40 to include the feature of determining periods that a wheel is detected by each wheel sensor. In this manner, Applicants can determine both a speed and position of the wheel independent of the diameter, flange height, etc. of the wheel. As a result, Applicants respectfully request withdrawal of this rejection.

The Office rejects claims 4 and 8 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Vanaki. In view of the amendments presented above and following remarks, Applicants respectfully request withdrawal of this rejection.

Initially, Applicants note that the Office relies on the alleged anticipation of the claims from which each of these claims depends. As a result, Applicants herein incorporate the various arguments presented above with respect to those rejections. In view of the arguments presented above, Applicants respectfully submit that claims 4 and 8 are not obvious in view of Vanaki, and request withdrawal of the rejection of claims 4 and 8.

With further respect to claim 4, the claimed invention including, *inter alia*, using two light illumination devices on a field side of a wheel and a light illumination device on a gage side of the wheel is not obvious in view of Vanaki. In particular, as Applicants' representative discussed during the telephone interview, in one embodiment, Vanaki and the claimed invention can measure several similar attributes of a rail wheel. As is shown and discussed throughout both disclosures, the gage (inside) and field (outside) sides of a railway wheel are generally not symmetrical. For example, the gage side can include a flange. Consequently, the portions of the wheel illuminated by the claimed invention and Vanaki differ substantially. Because of this, Applicants' claimed invention and Vanaki perform substantially different calculations in order to obtain the measurements. Further, in operation, the gage side of rail wheels frequently accumulates grease, brake dust, and the like from the gear train. Applicants' claimed invention overcomes the problem of measuring rail wheels in this situation by, *inter alia*, acquiring most measurements from the field side of the wheel. In sharp contrast, Vanaki fails to recognize this problem. As a result, Applicants respectfully request withdrawal of this rejection.

With further respect to the rejection of claim 8, as Applicants' representative noted during the telephone interview, Vanaki does not teach, *inter alia*, "at least four parallel lines of light" as alleged by the Office. In particular, FIG. 7 of Vanaki which is cited for support of this

interpretation clearly discloses the use of two substantially parallel lines. Regardless, Applicants have herein amended claim 8 to claim a different feature of the invention. As a result, Applicants respectfully request withdrawal of this rejection.

The Office rejects claims 13, 16, 18, 29-30, 37, and 47 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Vanaki in view of Gamache et al., and rejects claims 42-43 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Vanaki in view of Gamache et al. In light of the amendments presented above and following remarks, Applicants respectfully request withdrawal of these rejections.

Initially, with respect to claims 13, 16, 18, 29-30, 37, and 47, Applicants note that the Office relies on the alleged anticipation of the claims from which each of these claims depends. As a result, Applicants herein incorporate the various arguments presented above with respect to those rejections. In view of the arguments presented above, Applicants respectfully request withdrawal of the rejection of claims 13, 16, 18, 29-30, 37, and 47.

With respect to claim 42, Applicants have amended the claim to recite that the brightness of the wheel is sensed apart from the first light illumination device and the first light sensing device. In particular, as shown in FIG. 10 of the application, the brightness can be sensed prior to the wheel being in position for measurement, and hence being illuminated by the first light illumination device. In sharp contrast, Gamache et al. teaches use of a feedback provision in which the amplitude of a laser output is adjusted based on the brightness of the signal imaged for the laser output. In this manner, Gamache et al. would require high speed operation of both the laser and camera in order to adjust for a wheel traveling at approximately fifty miles per hour, adding expense to these parts. In the claimed invention, a slower speed sensing device can be

used, allowing for a less expensive alternative and a higher quality of image. As a result, Applicants respectfully request withdrawal of this rejection.

The Office rejects claim 22 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Vanaki in view of Mian et al. In light of the following remarks, Applicants respectfully request withdrawal of this rejection.

Initially, Applicants note that the Office relies on the alleged anticipation of the claims from which this claim depends. As a result, Applicants herein incorporate the various arguments presented above with respect to those rejections. In view of the arguments presented above, Applicants respectfully request withdrawal of the rejection of claim 22.

With further respect to claim 22, Applicants respectfully submit that Vanaki cannot be properly modified to measure the claimed reference groove. In particular, as discussed above, Vanaki positions two lasers on the gage side of a wheel. Further, the single laser on the field side illuminates the running surface and flange of the wheel. Col. 5, lines 42-58. However, as shown in FIG. 1A of the application, the reference groove (34) is located on the field side rim face (30), which is not imaged by Vanaki. In order to image this portion of the wheel, Vanaki would need to adjust the position of the laser in such a manner that the measurements currently being obtained using this laser could no longer be obtained. As a result, Applicants respectfully request withdrawal of this rejection.

## **NEW CLAIMS**

Applicants respectfully submit that each of the newly added claims 48-51 are allowable as presented for the above-stated reasons as well as their own unique features. As a result, Applicants respectfully request allowance of claims 48-51.

## CONCLUSION

In light of the above, Applicants respectfully submit that all claims are in condition for allowance. Should the Examiner require anything further to place the application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the number listed below.

Respectfully submitted,



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